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CHARLES J. BARBAS
CESARI AND MCKENNA, LLP
88 BLACK FALCON AVE.
BOSTON, MA 02210

EXAMINER
JAIN, RAJ K

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9

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Kompella et al..

Regarding claim 1, Christie discloses a method, system and apparatus for providing communications control processing in telecommunications signaling. Signaling between number of network elements is illustrated, the elements may be switches, server, nodes etc., see col 4 lines 57-60. Path establishment is performed via correspondence between the elements of interest, (see col 1 lines 55-70, cols 5-6 and Fig1). Each network element (NE) path (Fig 1) say (131) and (133) create the first path for communications, determined by CCP (120), the next path is again selected by CCP (120) based on appropriate signaling from each of the elements of interest to see if the path is clear or not. Each path state is independently established until the link form the original source to the final destination has been created, allowing for a completion of the communications link. Christie further discloses the time stamping of the messages (claims 3 and 4), but does not disclose the generating of the test message and latency calculations of the path in question. Kompella teaches a method of determining the latency of test messages

traveling within a given network by time stamping the packets and measuring the roundtrip delay of a test message transmitted, see column 7 lines 35-50. The actual latency of a given path in a computer network having plurality of network nodes is dependent on multiple factors such as (bandwidth, delay and latency variations). Latency determination is critical for time sensitive applications such as video, multimedia and others that do not tolerate well for delayed packet delivery to its destination. Since Christie's applications involves communications between source and destination in general, it would be advantageous to determine the latency of a particular link that involves the delivery of time sensitive information to the recipient for proper processing and therefore inclusion of latency calculations as taught by Kompella would be critical to a communications link. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the latency calculations of Kompella within Christie for such a purpose.

Regarding claim 2, network layer addressing is common knowledge in the art for routing of data (see US patent US 6097719 A) and therefore one can easily adapt the use of network addressing within any communications applications as appropriate.

Regarding claims 4-6, Christie teaches establishing of a link from one node to the next and so on, see Figs 1 & 2 cols 5-8, the formulation of signals is also described for a given path, see Fig 5 and cols 14 lines 62-70 and col 15. The generation of test messaging between different nodes has been described above in item 3 (Kompella).

Regarding claim 7, the use of a clock management facility between the entities is inherent in order to determine the latency (as taught by Kompella) between the nodes/entities and therefore must be included to measure the delay between two points.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Kompella et al. and further in view of Masters et al. Christie and Kompella do not teach source routing within the network, Masters teaches source routing and sequential ordering by use of routing tables that have dynamic capabilities, which update information for each node as messages arrive and depart, see col 3 lines 40-70, each route is composed in sequential order (claims 8 and 17). Source routing provides efficiency for message delivery by allowing each node to actively decide and update its route table for the best possible path to the next node of delivery. Thus incorporating the source routing technique of Masters within Christie would improve message delivery amongst plurality of nodes within a communications system by allowing each node to update its route table with available path information for each of the connecting nodes the message may traverse. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include Masters source routing technique within Christie to improve message delivery within a communications network.

4. Claims 8, 9, 13, 14, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Masters et al.

Regarding claims 8, 9, 18 and 19, Christie discloses a method, system and apparatus for providing communications control processing in telecommunications signaling. Signaling between number of network elements is illustrated, the elements may be switches, server, nodes etc., see col 4 lines 57-60. Path establishment is performed via correspondence between the elements of interest, (see col 1 lines 55-70, cols 5-6 and Fig1). Each network element (NE) path (Fig 1) say (131) and (133) create the first path for communications, determined by CCP (120),

the next path is again selected by CCP (120) based on appropriate signaling from each of the elements of interest to see if the path is clear or not. Christie does not disclose source routing within a network. Masters discloses source routing and sequential ordering by use of routing tables that have dynamic capabilities, which update information for each node as messages arrive and depart, see col 3 lines 40-70, each route is composed in sequential order (claims 8 and 17). Source routing provides efficiency for message delivery by allowing each node to actively decide and update its route table for the best possible path to the next node of delivery. Thus incorporating the source routing technique of Masters within Christie would improve message delivery amongst plurality of nodes within a communications system by allowing each node to update its route table with available path information for each of the connecting nodes the message may traverse. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include Masters source routing technique within Christie to improve message delivery within a communications network. Furthermore, the incorporation of a computer readable medium and program and execution of the program instructions is inherent to the invention, (also see claims 34-45 of Masters).

Regarding claim 13, Christie discloses throughout the spec the use of a processor within the subject invention for selection of network characteristics in response to a signal, col 3 lines 35-50. Masters discloses a routing technique, whereby each potential route is dynamically determined by each node transmitting the message to the next node (an option chosen by each node in question), see Fig 3 and col 3 lines 40-60, the combination of Christie's processor with Masters routing technique performs the same functions as the options processor of the subject claim.

Regarding claim 14, Christie discloses signaling protocol processor for establishing of a path state, cols 1-5.

Claims 10-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Masters et al. and further in view of McCloghri et al. McCloghri teaches computer networking that identifies specific traffic flows between entities and requests and applies appropriate rules or services to the traffic flows that incorporate a router alert option (per claim 11) that act as policy enforcers (210) see Fig 2. Traffic specifiers (per claims 10, 12 and 20) are used that provide a "profile" or threshold for a link to avoid congestion, so as to properly route the packets from one node to the next without it being dropped, see abstract, col 3 lines 40-60 and col 11 lines 12-25. The use of a traffic specifier and a router alert option would help to reduce packet loss between nodes by providing status of traffic flow (congestion) to the sending node. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include McCloghri's traffic flow profile scheme within Christie to reduce packet/data loss within the communications network.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christie in view of Masters et al. further in view of Woundy. Christie and Masters do not disclose a packet classifier, packet scheduler and the RSVP protocol. Woundy discloses a packet classifier, packet scheduler and the RSVP protocol, see col 1 lines 35-50. The use of a RSVP modules with the packet classifier and packet scheduler provides a method for dynamically allocating network resources with a desired QoS where needed within the network, see claims 1-5. This provides

for efficient use of bandwidth amongst the nodes with minimal delay and efficient traffic flow within the network. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Woundy and Masters within Christie, that further allows each node to not only update its routing table, but also to allocate network resources dynamically providing the most efficient use of bandwidth amongst the nodes within an network.

Response to Arguments

1. Applicant's arguments filed 6 February 2003 have been fully considered but they are not persuasive.

With respect to claim 1, Applicant argues Christie does not teach or suggest **establishing a path state at each network node along a selected path for identifying a traffic flow having predefined parameters and.....**

Christie does teach **establishing a path state at each network node along a selected path for identifying a traffic flow** (see col 1 lines 55-67), line 63 of col 1 specifically states in part ".....first switch **signals** the second switch and **establishes** a connection between the switches" the connection may also be interpreted as being virtual paths such as in an ATM system see col 5. Claim 1 illustrates the steps for **identifying a traffic flow** by receiving, processing and generating instruction messages for a given call from one element to the next. Furthermore, col 15 lines 41-55 describe the formulation of signals instructing network elements the **characteristics** selected, which is same as **having predefined parameters**. Christie also discloses time stamping of the messages (claim 3) but does not specifically discuss latency measurements of these messages. Kompella teaches a method of determining the latency of test

messages (also contended by Applicant page 8 of response last paragraph) traveling within a given network by time stamping the packets and measuring the roundtrip delay of a **test message** transmitted, see column 7 lines 35-50. Network congestion is monitored by appropriate transmission parameters such as throughput, latency, jitter etc, see col 2 lines 41-50. Packets are transmitted through calculated paths that offer the best possible link from source to destination see col 4 lines 47-67. Latency determination is critical for time sensitive applications such as video, multimedia and others that do not tolerate delayed packet delivery to its destination. Since Christie's applications involves communications between source and destination in general, it would be advantageous to determine the latency of a particular link that involves the delivery of time sensitive information to the recipient for proper processing and therefore inclusion of latency calculations as taught by Kompella would be critical to a communications link. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the latency calculations of Kompella within Christie to prevent delay of time sensitive data. Therefor claim 1 and all dependent claims therefrom stand rejected.

With respect to claim 8, Applicant argues neither Christie nor Masters suggest or teach either individually or in combination the following claimed limitations, recited here in part;

- **"inserting into the path state setup message a source routing option that lists one or more network nodes along the selected path"** Masters discloses source routing and sequential ordering by use of routing tables that have dynamic capabilities, which update information for each node as messages arrive and depart, see col 3 lines 40-70.

- **"inserting into the path state setup message one or more parameters that define a selected traffic flow"** Masters discloses the process of receiving, assimilating, updating and replicating information to be routed from node to node until all sites have the same information , see abstract and claims. Identifying a path with a particular set of parameters is disclosed by Christie **(see arguments to claim 1).** Source routing provides efficiency for message delivery by allowing each node to actively decide and update its route table for the best possible path to the next node of delivery. Thus incorporating the source routing technique of Masters within Christie would improve message delivery amongst plurality of nodes within a communications system by allowing each node to update its route table with available path information for each of the connecting nodes the message may traverse. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include Masters source routing technique within Christie to improve message delivery within a communications network.
  Claim 8 and all dependent claims therefrom stand rejected.

With respect to claim 13 Applicant argues neither Christie nor Masters suggest or teach either individually or in combination the following claimed limitations, recited here in part;

- **"an options processor in communicating relationship with the plurality of interfaces, the options processor configured to implement one or more options included in a received path state setup message identifying a traffic flow"** Christie discloses the use of a **signal processor** .....comprised of network elements, which **selects** a network characteristics in response to the signal (see col 3 – col 4), the selecting

of a characteristic is equivalent to **options** being discussed within the claim. Furthermore, the communications systems described by Christie uses a communications control processor (CCP) as in Fig 1 that is used for selecting network elements and paths (detailed throughout the specifications).

- **"a signaling protocol processor in communicating relationship with the options processor, wherein the options processor and signaling protocol processor cooperate to implement a source routing option included in the path state setup message by initializing a path state associated with the traffic flow and forwarding the path state setup message to a next network node as identified in the source routing option".** Masters discloses source routing and sequential ordering by use of routing tables that have dynamic capabilities, which update information for each node as messages arrive and depart, see col 3 lines 40-70. Furthermore, Masters discloses the process of receiving, assimilating, updating and replicating information to be routed from node to node until all sites have the same information , see abstract and claims. Identifying a path with a particular set of parameters is disclosed by Christie **(see arguments to claim 1).** Claim 13 and dependent claims therefrom stand rejected.

Applicant's newly added claims 18-20 have been properly considered and rejections incorporated within subjection Office Action accordingly.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raj K. Jain whose telephone number is 703-305-5652. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks
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Or faxed to:

(703) 305-9051, (for formal communications; please mark "EXPEDITED PROCEDURE)

Or:

(703) 305-5403 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

rj
April 7, 2003